

manifold chamber and said delivery conduit, and a heater frame member for supporting said heating element, said frame member including a flange portion compressively positioned between said air delivery conduit and said second surface of said cylinder head and a recessed body portion for placement inside an intake manifold chamber formed in a cylinder head, said flange portion having a predetermined minimal thickness for minimizing the distance between said air delivery conduit and said second surface of said cylinder head.

REMARKS

The above amendment with the following remarks is submitted to be fully responsive to the Official Action of March 10, 1998. Reconsideration of this application in light of the amendment and the allowance of this application are respectfully requested.

Claim 27 was rejected under 35 U.S.C. §112, first paragraph, as containing new subject matter which was not described in the specification and shown in the drawings in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner contends that the claim of a "C-shaped mounting element having insulating members associated therewith and said insulating members connected to said heating element" introduced new subject matter. Simply stated, the Examiner is asserting that the use of insulating members connected to the heating element is not described in the original specification or shown in the

drawings. In the subject invention, the frame and the heating element are both metal and therefore electroconductive. As is obvious to those skilled in the art, various insulator elements are inserted, when necessary, between two adjacent electroconductive elements to prevent an electrical short circuit. See, Tanaka at Column 6, Lines 45-48. Moreover, the specification (Page 8, Lines 23-25) does in fact provide that "heating element 44 is positioned between side walls 50 in each mounting groove 54 and that heating element is electrically isolated from frame 42, except at a ground connection at one end to heater frame 42 via a screw 58."

Accordingly, reconsideration and withdrawal of the rejection of claim 27 under 35 U.S.C. §112, first paragraph is in order and respectfully requested.

Claims 1-5 and 15-20 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Specifically, the Examiner contends that the last seven lines of claim 1 and the last five lines of claim 15 contain no structure but merely functional language. By this amendment, independent claims 1 and 15 have been amended to clarify the present invention. As a result, Applicant believes newly amended independent claims 1 and 15 are now clearly definite. Therefore, reconsideration and withdrawal of the rejection of independent claims 1 and 15 under 35 U.S.C. §112 is in order and respectfully requested.

Claims 1-4 stand rejected under 35 U.S.C. §103(a) as being obvious in view of U.S. Patent 4,685,437 to Tanaka et al. Tanaka et al. discloses

an air heater wherein a ceramic heating element in the shape of a perforated plate traverses a predetermined part of an intake opening such that a substantial part of said opening area is left free as untraversed by said heating element. This reference on the other hand discloses an electric resistance material heating element formed from an elongated strip of electrical resistance material wherein the heating element is positioned within the integral intake manifold chamber formed in the cylinder head. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be some reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In this case, there is no suggestion or motivation in Tanaka to modify the intake air heater disclosed in that patent. Also, there is no reasonable expectation of success articulated in the patent. Finally, Tanaka does not teach or suggest all the claimed limitations. In fact, Tanaka teaches away from the claim limitations by disclosing a ceramic heating element in the shape of a perforated plate wherein a substantial part of the opening area is untraversed by the heating element. Consequently, Tanaka fails to establish a *prima facie* case of obviousness.

Accordingly, reconsideration and withdrawal of the rejection of independent claim 1 under 35 U.S.C. §103(a) is in order and respectfully requested. Also, Applicant respectfully submits that dependent claims 2-4 are likewise allowable in that they ultimately depend on allowable base claim 1.

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tanaka et al. in view of Berg. The Berg reference merely suggests a low profile gasket heater positioned along an air delivery conduit between a throttle body means and an intake air manifold. Berg nowhere suggests that the intake air manifold is formed inside a manifold chamber nor does it suggest that an air heater may be positioned in an integral intake air manifold chamber. Therefore, Berg fails to make up the shortcomings of the Tanaka et al. reference as discussed hereinabove. Accordingly, reconsideration and withdrawal of the rejection of claim 5 under 35 U.S.C. §103 is in order and respectfully requested.

Claims 6-8, 10-12, 14 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cailey in view of Tanaka et al. Independent claim 6 is directed to an intake air delivery assembly including a cylinder head having an integral intake manifold chamber formed therein and an intake air heater means mounted at least partially in the integral intake manifold chamber. Cailey, on the other hand, discloses an intake manifold interface of the cylinder head wherein the intake manifold delivers charge air to more than one intake port. The Examiner cites Cailey for teaching the combination of the intake manifold of Cailey with the intake air heater of Tanaka et al. to reduce the size of the engine.

As previously mentioned, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In this case, neither reference discloses the desire to minimize the size of engine by mounting an intake air heater in an integral intake manifold chamber. It appears that the Examiner is relying on hindsight to: (1) combine the intake manifold interface of Cailey with the intake heater of Tanaka et al; and (2) to derive a functional advantage that is not disclosed in either reference.

Case law is clear on the point that an Examiner is not permitted to use hindsight when interpreting the prior art in a manner to render the present invention obvious. An excerpt from a Federal Circuit decision emphasizes this point by stating, "[i]t is difficult but necessary that the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is only presented with the references, and who is normally guided by the then accepted wisdom in the art." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983). In view of this decision, the interpretation of Cailey in combination with Tanaka et al. is flawed since neither specification supports the Examiner's conclusions. Consequently, the Examiner must be relying on hindsight.

Even if the references cited by the Examiner are properly combined, the combination still does not reach the teachings of the present invention. As discussed above, neither of the references discloses the desire to minimize the size of the engine by mounting an intake air heater in an

integral intake manifold chamber. Thus, it appears that the present invention is not obvious based on the cited references whether considered separate or combined. Applicant respectfully submits that the present invention of claims 6-8, 10-12, 14 and 19 are patentably distinguished from the prior art. Applicant respectfully requests therefor that the rejection be withdrawn and favorable reconsideration be given.

Claims 9, 13 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cailey in view of Tanaka et al. and further in view of Berg. However, as set forth hereinabove, Cailey, Tanaka et al. and Berg all fail to disclose an intake air heater at least partially positioned in an integral intake air manifold chamber formed integrally in a cylinder head. Thus, it is respectfully requested that this rejection of claims 9 and 13 be withdrawn as they depend on what is believed to be allowable base claims 1 and 6. Claim 20, which depends on independent claim 15, discloses an electrical connector extending through an aperture in a side surface of a cylinder head to provide an electrical connection between an electric resistance heating element and an electrical source. It is believed that claim 20 is allowable because neither Cailey, Tanaka et al. nor Berg disclose a cylinder head having a connector aperture formed in a side surface for receiving an electrical connector for connection to a heating element. Accordingly, withdrawal of this rejection of claim 20 is respectfully requested.

Claims 15-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cailey in view of Tanaka et al. Claim 15 is directed to an intake air delivery assembly including a cylinder head having an integral

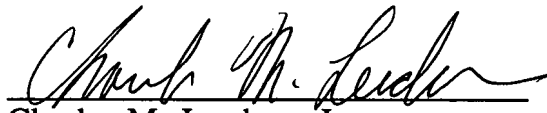
intake manifold chamber formed therein to receive an intake air heater, an air delivery conduit mounted on the cylinder head and an intake air heater including a flange portion compressively positioned between the air delivery conduit and the cylinder head and a recessed body portion for placement inside an intake manifold chamber formed in a cylinder head. The flange portion is specifically designed with a predetermined minimal thickness for minimizing the distance between the air delivery conduit and the cylinder head. Neither Cailey nor Tanaka et al., nor any references of record, suggest an intake air delivery assembly including a heater having a flange portion compressively positioned between an air delivery conduit and a cylinder head having an integral intake manifold chamber formed therein to receive an intake air heater. Thus, no reference suggests such an arrangement wherein the flange portion is specifically designed with a predetermined minimal thickness for minimizing the distance between the conduit and the cylinder head. Accordingly, reconsideration and withdrawal of the present rejection of claim 15 is in order and respectfully requested. Moreover, it is believed that dependent claims 16-18 are likewise allowable in that they depend from what is believed to be allowable base claim 15.

Finally, the Office Action noted that claims 21-31 were copied in preparation of Applicant provoking an interference. Applicant is in the process of completing her statement of justification and supporting affidavits for declaration of interference under CFR §1.608(b) and will forward that material to the Patent and Trademark Office in due course.

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In view of the foregoing, it is submitted that the present application is in condition for allowance and a notice to that effect is respectfully requested. However, if the Examiner deems that any issue remains after considering this response, he is invited to call the undersigned to expedite the prosecution and work out any such issue by telephone.

Respectfully submitted,

A handwritten signature in cursive script, reading "Charles M. Leedom, Jr.", written over a horizontal line.

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